

## Abstract

The present invention is referring to a procedure and an apparatus for collection of free methane gas from the sea bottom, destined to collect and liquefy the methane gas liberated from metastable deposits of hydrate methane situated on the seas or oceans bottom.

The procedure, in a first version of realization, according to the invention, includes the collection of free methane gas from the sea bottom in a mixture with the sea water and directing this mixture up wards to the surface, where is taking place a gravitational distribution of it on a big surface, for permitting the methane gas to separate from water. The humid captured methane gas is cooled to produce the condensation of the last seawater fraction after, which is done its cooling to the required temperature for passing from the gaseous state into the liquid state.

The apparatus, in its first version of realization, according to the invention, is made from some guiding arms **A** on which is sitting an intermediary platform **B**, destined to support some electrical reversible trolleys **D** and **E**, used for the displacement on radial and vertically direction of some telescopic conduit **21** and of some collectors **K**, of some electrical reversible and double trolleys **F** for driving some separators **L** and of a flexible conduit **50** on radial direction, as well and of some electrical reversible and double trolleys **G** used for some lateral anchors **7** maneuver. On the vertical axis of apparatus is found a central anchor **5** stiffed by a hoist **4**. The ends of arms **A** are provided with some propellers **8**, **9**, **10** and **11** for ensemble's rotation. On platform **B** and **C** are positioned a humidity extractor **M** from which the condense is eliminated, a gas methane liquefactor **N** and this is connected with a storage tank **O**. A nitrogen compressor **70** discharged the arrived nitrogen through laminate valve **f** towards a tank of liquid nitrogen **P**

Will be published Fig. 4.